

### CLAIMS

1. (Currently Amended) A device for measuring vibration in an article having a rotating member, the device comprising:
  - a motion sensitive transducer attachable to the article comprising an output producing ~~a time domain~~ an analog signal in response to the vibration;
  - an analog-to-digital data acquisition member comprising an input connected to the transducer output for sampling the transducer signal and comprising an output producing a ~~time domain~~ digital signal from the sampling;
  - ~~a timing~~ an optic sensor, responsive to a target feature on the rotating member, adapted to detect an instantaneous speed of the rotating member and ~~trigger~~ triggering the data acquisition member to begin sampling when the rotating member is rotating; and
  - a processor comprising an input connected to the data acquisition member output for processing ~~translating the time domain~~ digital signal to a ~~frequency domain digital signal and determining the magnitude and phase of the vibration signal at a frequency associated with the instantaneous speed of the rotating member.~~
2. (Currently Amended) The device of claim 1 wherein the processor further ~~comprises a comparator determining~~ determines whether ~~a~~ the magnitude of the vibration signal at ~~a~~ the frequency associated with the instantaneous speed of the rotating member is greater than a preselected threshold.
3. (Currently Amended) The device of claim 1 wherein the instantaneous speed is associated with a transient start up state of the article's rotating member and is less than an ~~the~~ operating speed of the rotating member.

4. (Original) The device of claim 1 comprising two transducers producing simultaneous vibration signals from different planes.
5. (Original) The device of claim 4 wherein the transducers are positioned orthogonally.
6. (Canceled).
7. (Currently Amended) The device of claim 1 wherein the processor performs a Fourier transform in translating the digital signal from a ~~the~~ time domain to a ~~the~~ frequency domain.
- 8 - 20. (Canceled)